REMARKS

Claims 41-55, as amended, remain herein.

Claims 48-50 have been withdrawn from further consideration but should be allowed if claim 47 is allowed.

Claims 43 and 47 have been amended to correct minor typographical errors therein. In claim 43, "compound dielectrics" was changed to "composite dielectrics" for consistency with claim 41, and in claim 47, "polyimide" was corrected as suggested by the Examiner.

1. Claims 41, 42, 44-46, 51, 52 and 54 were rejected under §102(b) over Harakawa et al. U.S. Patent 4,805,074 (hereafter "Harakawa") and claim 53 was rejected under §103(a) over Harakawa. Reconsideration of these rejections is courteously requested.

In the response filed September 10, 2003, applicants distinguished the claimed invention from Harakawa; those arguments are still pertinent and are incorporated by reference herein.

Applicants respectfully submit that Harakawa discloses a "polymer layer" of a heterocyclic compound such as pyrolle, furan, or thiophene. These "polymers" are most commonly known as

"conductive polymers." See the enclosed articles titled, "Update on Electrically Conductive Polymers and Their Applications" and "Covering Anodized Aluminum with Electro-polymerized Polypyrrole Via Manganese Oxide Layer and Application to Solid Electrolytic Capacitor."

The term "conductive" means "to pass an electric current," a function completely opposite to the function of "dielectric materials." That is, dielectric materials have electrical insulation properties, i.e., high electrical resistance. See the enclosed definition of dielectric material from the McGraw-Hill Dictionary of the Scientific and Technical Terms. The second definition reads, "A material which is an electrical insulator or in which an electric field can be sustained with a minimum dissipation of power." Thus, dielectric materials "do not pass an electric current."

The rejection may be based on a misunderstanding that "the polymer layer of the heterocyclic compound" may be a "high electrical resistance insulating layer". However, as disclosed in Kudoh et al. U.S. Patent 5,140,502, column 4, lines 46-52, "the polymer layer of the heterocyclic compound" is a "<u>conductive polymer layer</u>" (see column 4, line 52 of Kudoh). <u>More</u>

importantly, Harakawa discloses at column 8, lines 10-14 that "the polymer layer 8 has a high conductivity." This statement clearly established that the polymer layer of Harakawa is not a dielectric layer.

The Examiner asserts in the Final Rejection that "Harakawa clearly discloses that his dielectric is a composite made of a organic high polymer that reduces electrical current and this resistance to electrical current would provide a good ability to withstand voltage (see column 2, lines 26-60)"; see the second paragraph of 14. on page 7.

However, this statement reflects two important mis-understandings about Harakawa. Harakawa firstly does not disclose a "composite dielectric" and secondly the "organic high polymer" in Harakawa does not "reduce" electric current.

Harakawa discloses a "dielectric oxidation layer formed on a surface of the metal plate" (column 2, lines 52-54) as a dielectric layer, and a "polymer layer of a heterocyclic compound such as pyrolle, furan, or thiophene formed on the dielectric oxidation layer", not included (composite) in the dielectric layer.

The structure of the Harakawa capacitor is explained again to aid the Examiner in understanding the differences between the patent teaching and the present invention. In Fig. 3, reference numeral 1 denotes a metal plate that is an aluminum foil. A resist layer 6 is formed on a portion of the foil as shown in Fig. 1 to insulate the terminals. On the plate 1, a dielectric oxide layer 7 is formed on a surface of the foil, and a polymer layer 8 is formed on the layer 7. The graphite layer 9 and silver conductive layer 10 are formed on the polymer layer 8 to make a terminal.

In the structure disclosed in Fig. 3, only the dielectric oxide layer 7 functions as a dielectric layer. This layer consists only of an aluminum oxide and is not a composite layer. Thus, the Examiner's assertion that Harakawa discloses a "composite dielectric", with respect, is incorrect. Also, as explained above, the assertion that Harakawa's dielectric is "an organic high polymer that reduces electrical current" is also incorrect.

2. Claim 43 was rejected under §103(a) over Harakawa in view of Kudoh et al. U.S. patent 5,140,502.

Neither Harakawa nor Kudoh disclose simultaneous electro-deposition of an organic polymer at the time of anodizing as recited in claim 43. Accordingly, reconsideration and withdrawal of this ground of rejection are courteously requested.

3. Claims 47 and 55 were rejected under §103(a) over Harakawa in view of Higgins U.S. Patent 5,212,402.

Because these claims ultimately depend from claim 41, they are allowable for the reasons above.

In conclusion, applicants emphasize that it is well known that high polymers are insulators. However, under certain conditions a special kind of polymer such as polypyrrole and polythiophene can become conductive as the accompanying articles establish. This is not the case with high polymers, however. The claimed invention relates to dielectric high polymers, not conductive polymers.

The dielectric in the laminated capacitor according to the invention should be an insulator. A conductive polymer such as that disclosed in Harakawa thus can never serve as the claimed dielectric.

The dielectric in the capacitor of the present invention is an insulating polymer such as a polyimide, or a polyacrylic acid or a composite dielectric comprising the insulating polymer and aluminum oxide simultaneously obtained during the process of surface oxidation layer formation on an aluminum foil. Thus the structure of the present invention is completely different from those of Harakawa and Kudoh.

Finally, when laminating a plurality of plate shape capacitor elements, mechanical stress is applied to the elements and a dielectric consisting of aluminum oxide is easily broken, causing leakage current to increase. The dielectric layer of the present invention is tough and flexible and thus is not easily broken. Further, a capacitor having low dielectric loss and good high frequency characteristics is obtained by the method of the claimed invention because the polymer dielectric is low in dielectric loss and has good high frequency characteristics as compared to aluminum oxide dielectrics.

For all the foregoing reasons, there is no disclosure or teaching in Harakawa of all elements of applicants' presently

claimed invention, and Harakawa is therefore not a proper grounds for rejection of applicants' claims under §102.

In addition, there is no disclosure or teaching in either Harakawa, Kudoh, or Higgins that discloses or teaches anything that would have suggested applicant's presently claimed invention to one of ordinary skill in the art. Further, there is no disclosure or teaching in Harakawa, Kudoh, or Higgins that suggests the desirability of combining any portions thereof effectively to suggest applicants' presently claimed invention.

Accordingly, allowance of all claims 41-55 is courteously solicited.

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Should the Examiner have any questions regarding applicants' position or the differences between the claimed invention and the teachings of the cited references, applicants respectfully requests the opportunity to discuss these issues with the Examiner at an interview before an Advisory Action is mailed.

Respectfully submitted,

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February 6, 2004
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RWP:LELjr/sjh:klb

Attorney Docket No.: MEIC:047A
Enclosures:
"Update on Electrically Conductive Polymers and Their Applications"
"Covering Anodized Aluminum with Electropolymerized Polypyrrole Via Manganese Oxide Layer and Application to Solid Electrolytic Capacitor"
Page with definition of "dielectric material" from McGraw-Hill Dictionary of Scientific and Technical Terms

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